

AMENDMENTS TO THE CLAIMS

1-34. (Cancelled)

35. (Currently Amended) A method of operating a neurostimulator device that has a plurality of electrodes and a respective blocking capacitor coupled to each of the plurality of electrodes, the method comprising:

generating a first stimulation pulse by a pulse generator of the neurostimulator device and applying the first stimulation pulse to living neural tissue using a first electrode pattern;

generating a reverse pulse by the pulse generator and applying the reverse pulse according to the first electrode pattern to discharge blocking capacitors having retained charge after the first stimulation pulse, wherein a pulse width of the reverse pulse is longer than a pulse width of the first stimulation pulse and an amplitude of the reverse pulse is lower than an amplitude of the first stimulation pulse; and

after the blocking capacitors are discharged, generating a second stimulation pulse by the pulse generator and applying the second stimulation pulse to living neural tissue using a second electrode pattern;

wherein each of the first and second electrode patterns are defined by respective sets of stimulation parameters stored in memory of the neurostimulator device that are cyclically retrieved by a processor of the neurostimulator device to control pulse generation operations of the neurostimulator device, wherein the pulse generation operations cause a patient to experience substantially concurrent application of pulses according to the first and second stimulation pulses.

36. (Previously Presented) The method of Claim 35, wherein an absolute total charge delivered by the first stimulation pulse equals an absolute total charge delivered by the reverse pulse.

37. (Previously Presented) The method of Claim 35, wherein a switching network operates on the outputs of the pulse generator to generate the reverse pulse.

38. (Previously Presented) The method of Claim 37, wherein the switching networks reverse electrical connections to output nodes of the pulse generator.

39. (Previously Presented) The method of Claim 35, wherein the first and second stimulation pulses are applied to living neural tissue at a frequency greater than about 250 Hz without building charge on the blocking capacitors.